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Family functioning differences across the deployment cycle in British Army families: the perceptions of wives and children.

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Structured summary

Introduction

Military deployment can have an adverse effect on a soldier's family, though little research has looked at these effects in a British sample. We investigated wives' of UK serving soldiers perceptions of marital and family functioning, across three stages of the deployment cycle: currently deployed, post-deployment and pre-deployed, plus a non-military comparison group. Uniquely, young (aged 3.5 – 11 years) children's perceptions of their family were also investigated, using the Parent-Child Alliance (PCA) coding scheme of drawings of the family.

Materials and Methods

Two hundred and twenty British military families of regular service personnel from the British Army's Royal Armoured Corps (RAC), were sent survey packs distributed with a monthly welfare office newsletter. Wives were asked to complete a series of self-report items, and the youngest child in the family between the ages of 3.5 and 11 years was asked to draw a picture of their family. Complete data were available for 78 military families, and an additional 34 non-military families were recruited via opportunity sampling.

Results

Results indicated wives of currently deployed and recently returned personnel were less satisfied with their family and its communication, and children's pictures indicated higher levels of dysfunctional PCA, whilst pre-deployed families responded similarly to non-military families. Marital satisfaction was similar across all groups except pre-deployed families who were significantly more satisfied. Non-military and pre-deployed families showed balanced family functioning, and currently and recently deployed families demonstrated poor family functioning. In comparison to non-military families, pre-deployed families showed a large

'spike' in the rigidity subscale of the FACES IV.

Conclusion

Wives' perceptions of family functioning, but not marital satisfaction, differed between the deployment groups. The results from the coded children's drawings correlated with the self-report measures from the wife/mother, indicating that children's drawings could be a useful approach when working with younger children in this area.

It is tentatively suggested that the differences across deployment stage on family functioning could be mediated not only by communication difficulties between deployed personnel and their families, but also by its effect on the children in the family. Larger-scale longitudinal research is needed to investigate this further.

Introduction

A serving soldier's family is a valuable resource in terms of well-being of the soldier, with positive family functioning boosting a service member's morale, retention and work abilities.¹ Positive family relationships can be a source of mental resilience for soldiers while serving in combat zones.² Though much is known about the mental health of military personnel,^{3, 4, 5} the impact of deployment on families of military personnel has been relatively understudied.⁶ Although military families (MF) function similarly to civilian families,⁷ research indicates that mental health issues relating to a military career can impact the whole family;⁸ specifically, children can experience emotional and behavioural problems, with younger children expressing separation anxiety through externalised behaviours.^{9, 10, 11} One consistent finding is that a child's response to the deployment of a parent is mediated by the capability of the remaining parent,^{11, 12, 13} with research suggesting the stress of deployment on the spouse can have significant and long lasting adverse effects on young children's well-being.^{14, 15, 16}

Since 2001, service personnel have experienced unprecedented levels of stress, with longer and more numerous deployments than ever before.^{17, 18} Military deployments can be conceptualised in several ways, such as the purpose (e.g., training, combat, peacekeeping), the risk to service members, length, or as a cycle that begins prior to departure. This approach is similar to that of other major life events and has important implications when trying to understand the potential effect of those left at home, particularly on children. Pincus et al., described five stages of deployment: pre-deployment, deployment, sustainment, re-deployment, and post-deployment; each stage is characterised by specific emotional challenges to be and mastered by each family member.¹⁹ Although this framework discusses

the emotional impact of deployment, it can also explain the functional challenges MF face.

Understanding which dimensions of family functioning are present during each stage of deployment can inform how some families are able to successfully negotiate each stage; this can inform current interventions employed to aid MF functioning during deployment.

Previous research examining the impact of deployment has found that MF cope relatively well with short separations (under six-months), such as those experienced by UK MF, but longer and multiple deployments such as those experienced by US MF can result in measurable distress, with length of deployment¹² and cumulative length of deployment²² associated with child maladjustment, increase child depression and incidents of externalised behaviour both during and post-deployment. Olson's²⁰ circumplex model of family functioning proposes three core elements: *cohesion*, *flexibility* and *communication*. The Family Adaptability and Cohesion Evaluation Scale (FACES) IV²¹ is the most recent iteration of Olson's approach to conceptualizing and assessing family functioning, using self-report rather than observation. FACES IV taps six dimensions: high scores in cohesion and flexibility indicate balanced function, while high scores in disengagement, enmeshment, rigidity and chaos indicate unbalanced functioning, with positive communication skills facilitating greater cohesion and flexibility.²⁰

Current research with children is mostly based on retrospective reports from mothers (e.g. 10, 23, 24); direct measures have been taken from adolescents (e.g. 25,26,18) but no research to date has examined deployment directly from young children (0-11 years) who have the greatest risk of social and emotional adjustment problems.²⁷ Healthy parent-child relationships are characterised by clear generational boundaries with parents providing support and guidance

for children.²⁸ Maladaptive parent-child alliance (PCA) occurs when a parent turns to a child for support, and typically occurs within families with problematic family functioning.²⁸ PCA can be assessed using children's drawings of their family, focusing on the overall pattern of alliances in the family by coding both mother-child and father-child alliances.²⁸ The Draw-a-Family technique (introduced by Hulse in 1951²⁹) provides a window into a child's view of the family dynamic and is well established in clinical practice as providing a projective measure of a child's emotional status.³⁰ Research on attachment representations in adopted children reported family drawings to be a useful tool for classifying attachment.³¹ It is important to note that family drawings are not intended to assess the way the family actually functions, but rather how the child perceives the family to function.²⁹

Since the war on terror began, military marriages have been under increasing levels of stress due to the frequency of operational deployments.¹⁸ However the evidence that deployments harm marriages is limited, with some evidence indicating military marriages have a resilience to the effects of deployment separation.³¹ Research conducted with US^{31, 32, 33} and UK³⁴ military populations consistently indicate that divorce rates are similar or lower compared to the general population despite increased demands of military service in recent years.

Communication is critical for families to alter their levels of cohesion and flexibility; high levels of family satisfaction are associated with balanced family systems.³⁵ Communication during deployment is difficult: letters may take up to a week to arrive,³⁶ phone calls are initiated by the service personnel²² and conversation topics may be limited due to security risks.³⁶ Therefore, poor communication caused by the deployment of a spouse can result in the remaining parent's decreased ability to maintain a nurturing, cohesive family

environment.³⁷

Given increases in military operational length and frequency, the perception and satisfaction of family functioning in children and wives of serving personnel at different stages of the deployment cycle (currently deployed, pre-deployed and post deployed) in the UK were investigated, as well as a comparison group of non-MF. We recruited only wives, as husbands of military personnel react differently to deployment.³⁸ This is the first paper to look at group differences in family functioning across operational deployment status of serving soldiers in the British Army. Uniquely, this research focussed on pre-adolescent children, using their drawings of the family to measure their perception of family functioning. Four groups were recruited: MF with a father currently deployed (currently deployed families: CDF); MF who had experienced deployment in the last 12-months (post-deployed families: PDF); MF who had not experienced a period of operational deployment in the last 12-months (pre-deployed families: PrDF); and non-MF (NMF). We predicted that wives and children of currently-deployed personnel would show the lowest levels of marital satisfaction and score highest on unbalanced dimensions of family functioning, with the families of those recently returned from deployment showing attenuated scores. PrDF and NMF were predicted to score similarly on all dimensions of family functioning, with higher scores on balanced dimensions overall. It was additionally predicted that family pictures drawn by children who had experienced deployment in the last 12-months would be rated higher in Parent-Child Alliance (PCA) than those drawn by children who had not.

Method

Participants

Two hundred and twenty MF from the Royal Armoured Corps received survey packs distributed with the Unit Welfare Office (UWO) monthly newsletter. At the time of data collection only males were permitted to serve in the Corps. Eighty-one were returned: three families did not meet entry criteria, resulting in complete data from 78 British MF. Of these, 34 were pre-deployed families (PrDF) who had not experienced an operational deployment in the last 12-months, 10 families had a member currently deployed (CDF) on a tour of Afghanistan (Op HERRICK 14), with their current tour length ranging from 4 to 5 months ($M = 4.1$, $SD = .32$) and 29 were post-deployed families (PDF) who had undertaken a tour of Afghanistan in the last 12-months (Op HERRICK 13) ranging between 6 to 7 months ($M = 6.8$, $SD = .44$). Thirty-four NMF were recruited via convenience sampling through local connections in settings similar to the UWO (e.g. play centres and parent-child groups). Table 1 describes the length of soldiers' service (MF only), age of participants (children and mothers), and marriage duration. In total, data from 112 families were analysed. There were no significant differences between the four groups in age of mother, age of child, marriage duration or length of soldiers' service (see Table 1).

{TABLE 1 HERE}

Measures

Marital Satisfaction.

The Kansas Marital Satisfaction (KMS) Scale was used to assess wives' marital satisfaction.

It is a brief 3-item 7-point self-report scale, with high scores indicating good marital satisfaction. The measure has a test-retest reliability of .71.³⁹

Family Functioning.

Wives' perception of overall family system functioning was assessed using the Family Adaptation and Cohesion Evaluation Scale (FACES) IV.⁴⁰ This self-report measure provides a rapid assessment of family functioning, measuring two major constructs (cohesion and adaptability) of the Circumplex Model, both emphasise the importance of family adjustment and change.⁴¹

Forty-two items measure six subscales: Cohesion and Flexibility ('Balanced' scales) and Disengaged, Enmeshed, Rigid and Chaotic ('Unbalanced' scales). Raw scores are converted into a ratio score, which measures the level of 'balance' versus 'unbalance' in a family system. The ratio scores range from 0 to 10, with 1 indicating an equal amount of balance vs. unbalance in the system. The higher the score over 1, the more balanced or healthy the system. Reliability for each of the six FACES IV subscales ranges from .77 to .89.⁴² This measure is referred to as 'family balance' throughout this paper. In addition to the six subscales measuring family balance, FACES IV also includes a measure of family communication and family satisfaction.

The Family Satisfaction Scale is a 10-item measure that assesses the degree of satisfaction with aspects related to family cohesion and flexibility. Higher scores indicate more satisfaction. Alpha reliability for the scale is .93.²⁰ The Family Communication Scale is a 10-item scale that assesses communication in the family system and is considered a facilitating

dimension in the Circumplex Model. Higher scores indicate better communication. Alpha reliability for the scale is .90.²¹

Family Drawings.

Family drawings were coded using the 7-point Parent-Child Alliance (PCA) scale, which codes for distance/overlap between family members, size of family members and level of detail of family members.²⁸ High scores indicate high PCA levels, indicating poor family functioning. Given that drawings with fathers at a distance could represent physical as well as emotional distance, a revised PCA scale was devised, which removed any distance-related information (see Table 2 for detail). The scores for both the standard and revised scales are reported.

The reliability of this measure in acquiring consistent family representation was assessed. Twenty-three families provided two family drawings with a 4-day period between. A Pearson's correlation analysis revealed a significant positive correlation ($r=.994, p<.001$; $r=.969, p<.001$) between the PCA score assigned to pictures 1 and 2. A second coder, blind to both the research aims and family status, independently rated 49% of the drawings (including all drawings used to assess reliability of family drawings) on the PCA scale. A Pearson's correlation analysis revealed a significant positive correlation ($r=.782, n=54, p<.001$). A different second coder rated the revised scale data ($r=.973, n=59, p<.001$).

Procedure

Mothers were asked to complete the self-report questionnaires, and ask the youngest child in the household between 3.5 and 11-years old to draw a picture of their family on the A4 paper

provided. Mothers were asked to indicate the people depicted in the picture on the reverse.

The study was approved by the Psychology Ethics Committee of the University of Winchester.

Results

Marital Satisfaction.

PrDF reported the highest levels of marital satisfaction ($M=6.6$, $SD=.5$), followed by NMF ($M=6.1$, $SD=.66$), CDF ($M=5.9$, $SD=.47$) and PDF ($M=5.8$, $SD=.79$). An ANCOVA indicated that Age of Child ($F(1,106)=1.8$, $p=0.18$) and Marriage Duration ($F(1,106)=3.5$, $p=0.06$) were not significantly related to Marital Satisfaction. There was a significant effect of Deployment stage on wives' report of marital satisfaction ($F(3,106)=9.6$, $p<.001$, partial $\eta^2=.21$). *A priori* contrasts revealed no significant differences between PDF and CDF on marital satisfaction ($p=.74$), but significant differences between PrDF and NMF ($p=.005$). These differences seem driven by the high rating of marital satisfaction from PrDF (see Figure 1).

{FIGURE 1 HERE}

Family Balance.

The NMF group reported the most balanced scores ($M=4.8$, $SD=1.5$), followed by PrDF ($M=3.6$, $SD=.89$), PDF ($M=1.8$, $SD=1.3$), and CDF ($M=0.7$, $SD=0.6$). An ANCOVA indicated no significant effect of Marriage Duration ($F(1,106)=.56$, $p=.46$) or Age of Child ($F(1,106)=1.4$, $p=.25$) on Family Balance. A one-way ANOVA corrected for homogeneity of variance confirmed a significant effect of deployment stage on wives' reports of family balance ($F(3,33.47)=48$, $p<.001$, $\eta^2=.81$). *A priori* contrasts revealed a significant difference between CDF and PDF families ($p<.001$), who both scored lower than PrDF and NMF, who showed no significant difference ($p=.78$; see Figure 2).

{FIGURE 2 HERE}

In order to examine potential differences between military and NMF on family balance, without taking the effects of deployment into account, we compared NMFs with PrDFs on the six-subcales of the FACES IV. The groups showed non-significant differences on Flexibility ($t(71)=-.55, p=.59$), which might have been expected to be lower in PrDF given anecdotal evidence that MF are more highly-structured.⁴³ However, PrDF scored significantly higher on measure of Rigidity ($t(41)=8.83, p<.001$), and significantly lower ($t(54.7)=-2.48, p=.016$) on measures of Cohesion, defined as the emotional bonding that family members have toward one another.⁴² There were no other significant differences on the unbalanced subscales (Disengaged, Enmeshed, Chaotic) (see Figure 3).

{FIGURE 3 HERE}.

Family Communication and Satisfaction.

Wives of PrDF were most satisfied with family communication ($M= 86.5, SD= 16.2$), NMF were also highly satisfied ($M= 83.9, SD 15.7$), while wives of PDF were moderately happy ($M= 45.2, SD= 28.1$) and wives of CDF rated their family communication very low ($M=18.5, SD=11.1$). An ANCOVA indicated that the covariates Age of Child ($F(1,106)=2.6, p=0.11$) and Marriage Duration ($F(1,106)=1.4, p=.25$) were not significantly related to Family Communication. A corrected one-way ANOVA confirmed a significant effect of deployment stage on wives' satisfaction with family communication ($F(3,40.25)=98.028, p<.001$, partial $\eta^2=.58$). *A priori* contrasts revealed no significant difference in communication satisfaction

between NMF and PrDF groups ($p=.6$). NMF and PrDF rated family communication significantly higher than PDF ($p<.001$), who rated communication significantly higher than CDF ($p=.001$).

Wives of PrDF were most satisfied with family ($M=81.6$, $SD=20.1$), and wives of NMF were also highly satisfied ($M=79.8$, $SD=24.5$), while wives of PDF were moderately satisfied ($M=40.2$, $SD=26.7$) and wives of CDF reported being very dissatisfied about their family ($M=18.8$, $SD=20.1$). An ANCOVA confirmed the covariate Age of Child had a significant effect ($F(1,106)=6.7$, $p=.01$), although the pattern of this effect is hard to identify from the data. There was no significant effect of Marriage Duration ($F(1,106)=2.6$, $p=.1$), and a significant effect of deployment stage on wives' reports of family satisfaction ($F(3,106)=38.1$, $p<.001$, partial $\eta^2=.52$). *A priori* contrasts revealed no significant differences in family satisfaction between PrDF and NMF ($p=.9$). There were significant differences between CDF and PDF ($p=.01$) and between PDF and PrDF/NMF ($p<.001$) (see Figure 4).

{FIGURE 4 HERE}

Parent-child Alliance (PCA).

Deployment group differences on levels of PCA in children's drawings were assessed, using the standard and revised PCA scale. Children of NMF were rated the lowest on PCA ($M=1.12$, $SD=.33$; PCA-R $M=1.03$, $SD=.17$), followed by PrDF ($M=1.46$, $SD=0.9$; PCA-R $M=2.08$, $SD=1.44$) and then PDF ($M=5.1$, $SD=1.8$; PCA-R $M=4.17$, $SD=2.54$), with drawings by children of CDF scoring the highest on PCA ($M=6.1$, $SD=1.9$; PCA-R $M=5.2$, $SD=2.04$). An ANCOVA revealed a significant effect of Marriage Duration on PCA Scores

($F(1,106)=4.5$, $p=.04$) but not of Child's Age ($F(1,106)=1.3$, $p=.27$); there was no significant effect of either Child's Age ($F(1,106)=.77$, $p=.38$) or Marriage Duration ($F(1,106)=.48$, $p=.49$) on PCA-R scores. Plots indicated a negative relationship between Marriage Duration and PCA score for CDF and PDF groups, but not PrDF and NMF, such that those married longer tended to have lower scores on PCA.

A corrected one-way ANOVA confirmed a significant difference across deployment stage on the level of PCA scored in children's drawings ($F(3,30.42)=66.55$, $p<.001$, partial $\eta^2=.732$; PCA-R ($F(3,29.137)$, $p<.001$, partial $\eta^2=.44$). *A priori* contrasts revealed no significant differences between NMF and PrDF ($p=.3$) for the standard PCA scale, but a significant difference between these and PDF ($p<.001$), who were significantly lower than CDF ($p=.02$). On the PCA-Revised scale the pattern was slightly different, with no significant difference between CDF and PDF ($p=.09$), PrDF significantly higher ($p<.001$) and NMF significantly higher again ($p=.01$).

{FIGURE 5 HERE}

Correlational analyses.

The relationships between all the variables were examined using Pearson's correlations (see Table 3). There were significant correlations between all variables, except Marital Satisfaction and FACES Unbalance, and Marital Satisfaction and PCA-R scores.

{TABLE 3 HERE}

Discussion

The present study investigated group differences across three stages of the deployment cycle on the functioning of British Military Families (MF) from the perspective of wives and pre-adolescent children of serving soldiers. We hypothesised that families with a member currently deployed would score lower on measures of marital satisfaction, family balance measures including satisfaction and communication, and score highest on measures of parent-child alliance (PCA), whilst those families in the pre-deployment stage would score similarly to non-military families. Results broadly supported these hypotheses on all measures except marital satisfaction, where pre-deployed families scored significantly higher than all other groups.

Previous research with US^{31,32,33} and UK³⁴ MF suggests that deployment does not harm military marriages; our results support this. Interestingly, those who have not recently deployed (PrDF) had significantly higher marital satisfaction than the other groups. This may be because these families were anticipating an imminent operational deployment as part of the 18-month cycle. It is important to note that no group reported dissatisfaction with their marriage, with mean scores ranging from 'very satisfied' to 'moderately satisfied'.

The family functioning results support previous US-based research that family functioning is affected by deployment cycle,^{19, 24} with both CDF and PDF groups showing 'problematic' family functioning.⁴² With CDF it is unsurprising that wives perceive family functioning to be unbalanced, as their husbands are deployed in a distant country facing regular danger. In regards to PDF the imbalance may be indicative of families during the post-deployment stage

experiencing a period of re-adjustment including family role re-negotiation.²² NMF are significantly more balanced than PrDF, with slightly higher levels of Cohesion, and much lower levels of rigidity. Indeed, all MF groups showed a spike in the unbalanced rigid dimension: we suggest that this dimension is the driver of the significant difference in overall family functioning. Previous research has suggested that rigidity, i.e. rules and structured routines, may operate as a strength within MF, as families with this profile showed resilience, including high levels of well-being, low levels of depression and high levels of positive parenting.²⁴ It is important to consider that although rigidity may support more resilient outcomes in MF it may not in other family contexts.

Family communication and satisfaction both significantly differed across deployment stage. PDF and CDF rated communication and satisfaction significantly poorer than the pre-deployed groups, with the currently-deployed group significantly worse than all other groups. Given the difficulties in communication during operational deployments^{19, 36} the finding that CDF wives report poorer communication is not surprising. Interestingly however, PDF also report poor satisfaction. One explanation could be that the PrDF ratings are artificially high in anticipation of future deployment, although this explanation is undermined by the similarity in rating scores to the NMF groups. Post-deployment is a period of re-adjustment for both the returning soldier and the family¹⁹: wives' moderate rating of family satisfaction may be a result of feeling a loss of independence or feeling pushed to one side while the returning father receives positive attention from the children.²²

Unique to this study, pre-adolescent children's perceptions of family functioning in UK MF were investigated. Results indicated a significant difference across deployment group on

ratings of PCA in children's drawing of their families. NMF and PrDF group drawings were rated significantly lower (indicating better functioning) on PCA than PDF, with the highest scores for the CDF group. Children in CDF often separated their father from the rest of the family, drawing themselves close to the remaining family members. In order to ensure that PCA scores were not artificially high due to a realistic representation of a father's physical distance, we removed distance-related criteria from the coding scheme; CDF still scored highest for PCA. It is important to consider that, similar to the argument regarding high levels of rigidity promoting resilience in military families, any conclusion that high PCA represents poor functioning might not be appropriate within this sample. Instead, it might reflect a temporary alteration in family dynamics as a result of an expected and predictable change. Further research on the meaning of this group difference is needed to draw clearer conclusions. Positively, the PrDF group scored similar to the NMF children, indicating that outside deployment MF function well, from a child's perspective, and that any disruption is likely temporary.

The PCA scales significantly correlated in the expected directions, indicating that the lower the PCA level from children, the higher the reported level of overall family satisfaction and the higher the balance ratio from mothers, which is indicative of healthy family functioning.⁴² This indicates that the PCA scale does reflect the overall pattern of alliances in families, with children able to successfully recognize and represent the family patterns around them.²⁸ This approach could shed further light on the effect of operational deployment from a child's perspective. We therefore suggest that this method is suitable for investigating such effects with children who may be too young to complete self-report scales or participate in more formal interviews.

Research has focussed on the effect of communication between spouses during deployment, however our results indicate that whilst communication is important in general it might not be the only mediator of family functioning, and we tentatively suggest that the effects on the children in a family could also act as a mediator in this relationship. Indeed, the lack of difference on marital relationships between the deployed and post-deployed groups, concurrent with differences in family functioning suggests that this could be an important factor in any negative effects of deployment. Therefore we suggest that a larger sample, over multiple time-points, be recruited to investigate this relationship, and potential causal mechanisms, more thoroughly. It should be noted that participation in this research was voluntary, which means we cannot be sure how representative of the wider UK military these families are. However, given that the focus was to explore group differences across the deployment cycle, there is little reason to believe that groups are systematically different.

This research helps to inform our understanding of MF functioning, particularly from the perspective of pre-adolescent children in the context of deployment experience. Our findings suggest that the effects of deployment are temporary, with MF successfully adapting to each stage of deployment. While increased rigidity has classically been considered evidence of poor family functioning this might not be the case for military families, and could instead be considered a protective factor that preserves positive family functioning. Similarly, a temporary change in PCA might also reflect resilience in families rather than indicative of disorder. These issues should be addressed in future research.

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Table 1: Mean (SD) age of mother, child, number of years married, and soldier's length of service (years) by deployment group.

	Age of Mother	No. of years married	Age of child	Soldier's length of service
NMF (n=34)	33.4 (6.7)	8.1 (4.7)	5.9 (2.1)	-
PrDF (n=39)	33.3 (4.5)	8.1 (3.4)	5.2 (1.8)	14.3 (5.4)
CDF (n=10)	30.2 (3.2)	7.4 (2.9)	4.7 (1.1)	14.3 (5.4)
PDF (n=29)	31.6 (4.6)	7.2 (4.1)	4.7 (1.5)	14.1 (5.3)

(NMF: non-military families; PrDF: pre-deployed families; CDF: currently-deployed families; PDF: post-deployed families).

Table 2: *Adapted Parent–Child Alliances Scale*

<i>7-Very High</i>	These drawings are immediately recognizable, there may be a noticeable difference in appearance between the aligned parent and child versus the excluded parent, or the non-aligned parent may be less detailed or colorful. The aligned parent and child may be the same size with the excluded parent and family members being represented as either larger or smaller.
<i>6-High</i>	Drawings meet the criteria of the above category although somewhat to a less extreme degree. The child and aligned parent may only be slightly larger or smaller than the excluded parent. There may be less differentiation in appearance between the aligned pair and other family members.
<i>5-Moderately High</i>	At this scale point there are minor signs suggesting alliances, for example, some physical distinctions between aligned figures and other figures.
<i>4-Moderate</i>	At the midpoint, it may be difficult to make a clear judgment regarding alliances because the figures may be fairly evenly spaced. It may be difficult to determine whether differences between figures' appearance are intentional or the result of drawing ability. There may be some indication of boundary problems, but there is no clear evidence of parent–child alliances.
<i>3-Moderately Low</i>	The appearance of the drawing is characterized more by cohesiveness than by parent–child alliances. If there are signs of alliances, they are very minor and few in number. Any subtle signs of alliances that are present (there may be none) are superseded by indicators of cohesive or healthy relationships.
<i>2-Low</i>	There are no clear signs of alliances, but there may be some minor indicators that make the drawing look less cohesive or healthy than drawings receiving the lowest rating. Family members may be distinguished by gender, clothing, or other details.

<i>1-Very Low</i>	These drawings show no sign of alliances between a child and either parent. The family members are evenly sized appropriately given their role in the family (typically dad is the tallest, followed by mum, then self, with siblings being larger when older and smaller when younger). No barriers exist between the figures and all family members are included.
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Table 3: Correlation matrix of family measure variables

	PCA	PCA-R	Balance	Unbalance	Communication	Satisfaction [†]
KMS [±]	-.29**	-.14	.33**	-.13	.46**	.45**
PCA ^α		.84**	-.70**	.69**	-.74**	-.64**
PCA-R ^β			-.62**	.63**	-.69**	-.56**
Balance [†]				-.84**	.86**	.74**
Unbalance [†]					-.75**	-.63**
Communication [†]						.87**

** $p < .001$; [±] *Kansas Marital Satisfaction*; ^α *Parent-Child Alliance*; ^β *Revised Parent-Child Alliance* [†] from *FACES IV*

FIGURE 1

Marital satisfaction ratings from the Kansas Marital Satisfaction scale, by deployment group.

(NMF: non-military families; PrDF: pre-deployed families; CDF: currently-deployed families; PDF: post-deployed families).

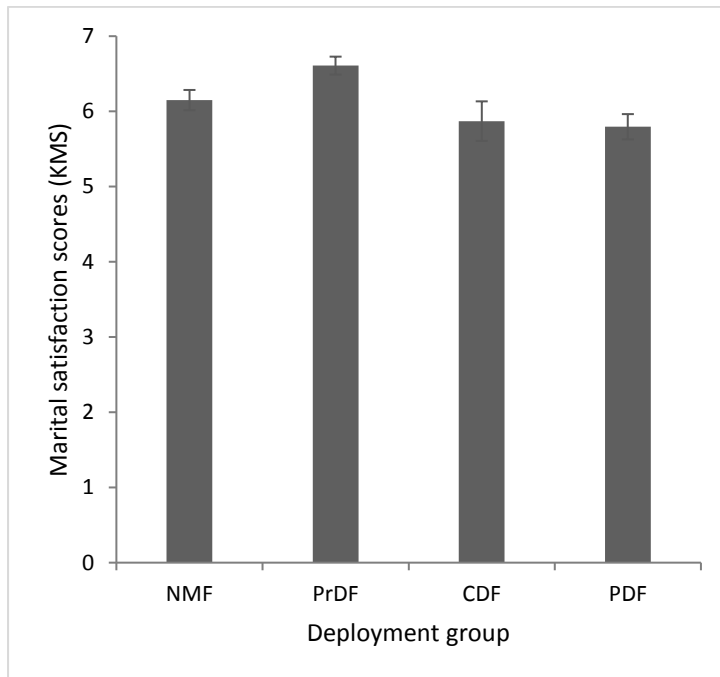


FIGURE 2

Mean Circumplex Ratio scores from FACES IV (a measure of family functioning) by deployment group. Higher scores represent better functioning, with scores below 1 indicating imbalance. (NMF: non-military families; PrDF: pre-deployed families; CDF: currently-deployed families; PDF: post-deployed families).

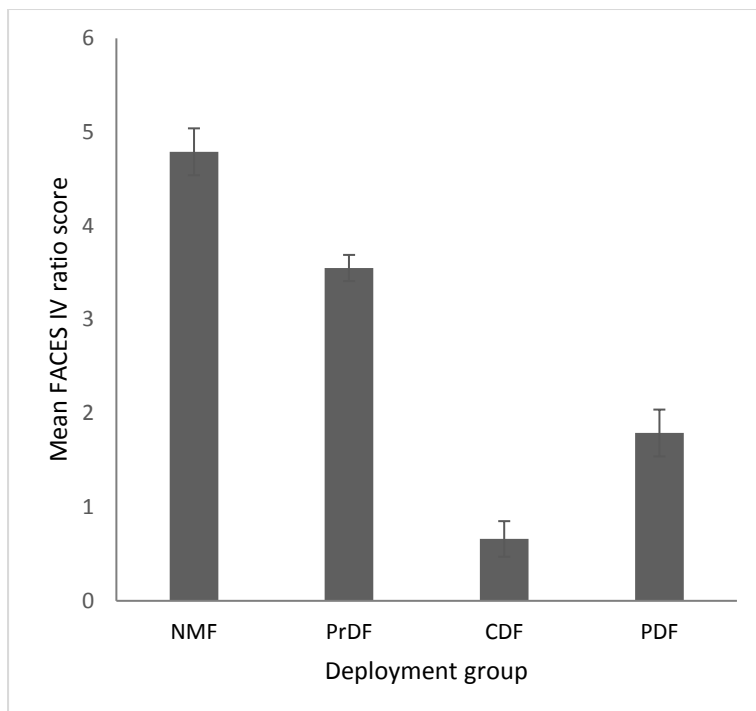


FIGURE 3

Percentile scores from the FACES IV subscales to compare pre-deployed military (PrDF) and non-military (NMF) families. Cohesion and Flexibility represent balance in the family; disengaged, enmeshed, rigid and chaotic represent imbalance.

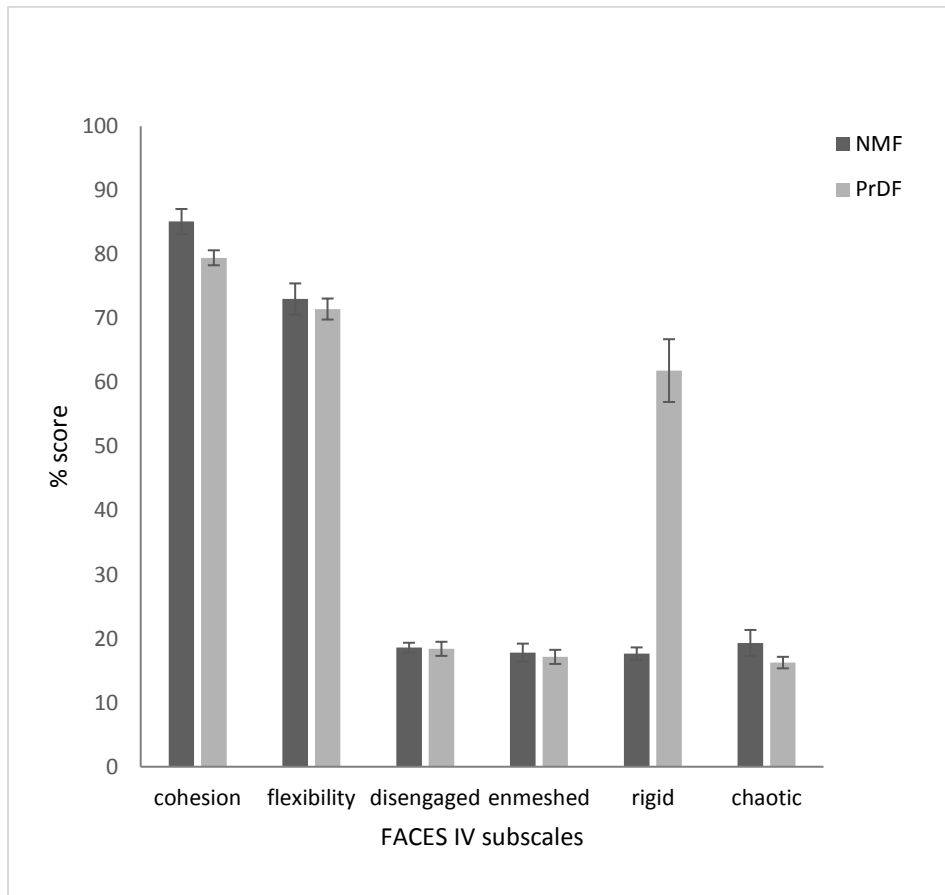


FIGURE 4

Family Communication and Family Satisfaction percentage scores from FACES IV by deployment group. (NMF: non-military families; PrDF: pre-deployed families; CDF: currently-deployed families; PDF: post-deployed families).

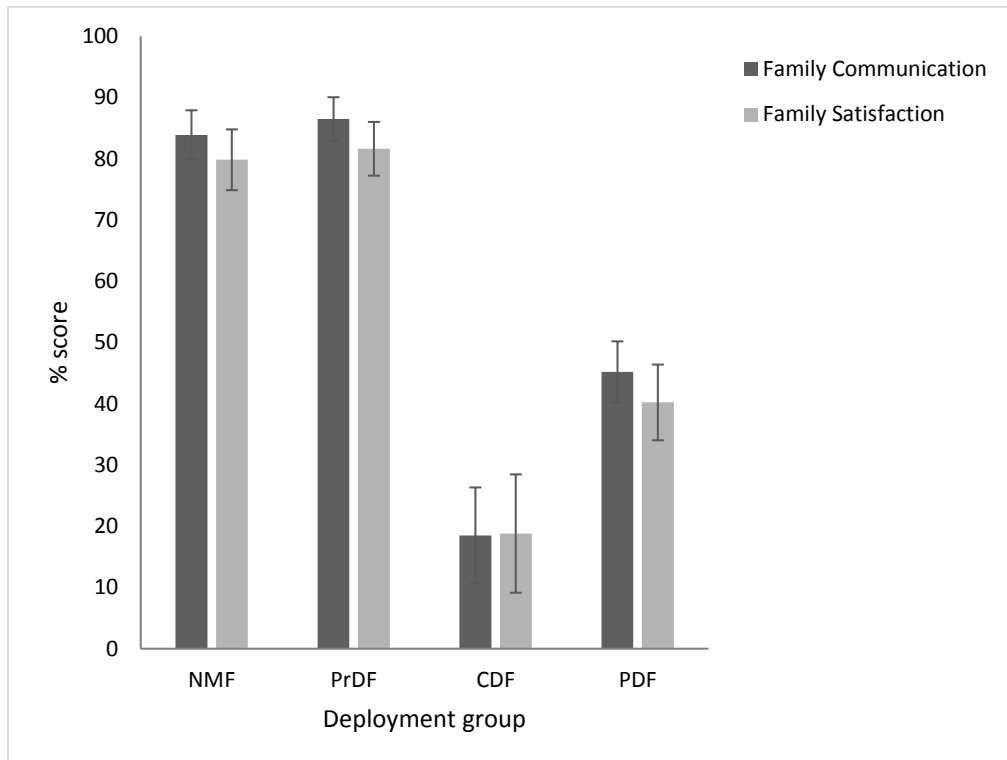


FIGURE 5

Mean parent-child alliance (PCA) scores by deployment group. (NMF: non-military families; PrDF: pre-deployed families; CDF: currently-deployed families; PDF: post-deployed families; PCA-S Standard PCA; PCA-R: Revised PCA).

